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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/780,962

02/18/2004

Gerard Francis McLean

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1684

21186

7590

12/24/2008

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EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

12/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,962	Applicant(s) MCLEAN ET AL.	
	Examiner Brian K. Talbot	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/14/08</u> . | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/14/08 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In light of the response filed 10/14/08, the 35 USC rejection including JP '291 has been withdrawn. However, the following rejection is applied hereto as detailed below.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4,8-14,18-23,27-34,36,37,41-43,45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859).

Wilkinson et al. (5,252,410) teaches a fuel cell membrane electrode assembly with integral reactant flow passages. The fuel cell includes electrodes and separators whereby the electrodes have passages or interstitial spaces such as grooves formed therein. An ion exchange membrane, i.e. electrolyte, is placed between the electrodes (abstract).

Wilkinson et al. (5,252,410) fails to teach the claimed electrolyte composition including PFSI with a monomer and a cross-linking agent having at least two vinyl functionalities.

Keifer (2005/0147859) teaches a polymer electrolyte comprising protonic polymer comprising acid groups, a vinyl phosphonic acid monomer and a crosslinking agent which includes multiple materials having at least two functionalities (abstract, examples and [139]). Keifer (2005/0147859) teaches of the desire to mix a proton conducting polymer with vinyl-containing phosphonic acids (abstract) to obtain a membrane having outstanding chemical and thermal properties. The claimed elasticizing compound is a vinyl monomer, i.e. acrylonitrile.

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Wilkinson et al. (5,252,410) electrolyte by substituting the ion exchange membrane, i.e. electrolyte as evidenced by Keifer (2005/0147859) with the expectation of achieving similar success.

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Claims 5,15,24,38 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) as applied above further in view of Singleton (5,425,687).

Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) fails to clearly require the presence of an initiator in the electrolyte.

Singleton (5,425,687) is drawn to cross-linking of various ion exchange membranes wherein the mixture includes a cross-linker such as divinyl benzene (col. 5, lines 35-40). The mixture further can include an initiator (paragraph bridging columns 5 and 6).

The motivation for using an initiator would have been readily apparent to the ordinary worker in the art so as to initiate the cross-linking.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) by using an initiator since it would have provided the predictable result of initiating cross-linking. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Claims 6,7,16,17,25,26,35,39,40,44 and 48-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) as applied above further in combination with Kang et al. (6,727,024).

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Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) as applied above fails to teach adding a solvent and curing the electrolyte composition by heating or electron bombardment.

Kang et al. (6,727,024) teaches a solid polymer electrolyte whereby the polymer electrolyte includes a solvent (col. 5, lines 25-67) and the electrolyte is cured by irradiation with UV, e-beam or gamma rays as well as with a heat source (col. 7, lines 54-65).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Wilkinson et al. (5,252,410) in combination with Keifer (2005/0147859) process by including a solvent and curing by e-beam or a heat source as evidenced by Kang et al. (6,727,024) with the expectation of achieving similar results, i.e. a cured electrolyte.

Response to Arguments

6. Applicant's arguments with respect to claims 1-52 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that the prior art fails to teach the claimed composition, i.e. PFSI having two vinyl functionalities.

Keifer (2005/0147859) teaches this as detailed above/

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian K Talbot/
Primary Examiner, Art Unit 1792

BKT

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